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EXAMINER				
RENNER, CRAIG A				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/727,804

Applicant(s)

DEE, RICHARD H.

Examiner

Craig A. Renner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2007 & 14 January 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-20 is/are pending in the application.
4a) Of the above claim(s) 4, 13 and 20 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3, 5-8, 10-12 and 14-19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Final Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claim 20 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 09 August 2006.
2. Applicant's election without traverse of "Species I, in which claims 1-8 and 10-19" are said to "read thereon" in the reply filed on 14 January 2008 is acknowledged. Claims 4 and 13, however, do not read on the elected species as elected species I of FIG. 2 does not include "at least one read/write head of a read/write/read configuration and at least one read/write head of a write/read/write configuration." Accordingly, claims 4 and 13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "position control unit operable to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation," as set

forth in lines 9-11 of claim 1 and lines 7-9 of claim 10, must be shown or the feature(s) canceled from the claim(s). Since applicant believes this to be the patentable feature of the claims, the details of the position control unit giving it the capability "to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation" must be shown. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) and/or an amendment to the claims in compliance with 37 CFR 1.121(c) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following is suggested:

--MULTI-HEAD DATA STORAGE DEVICE WITH
PLURAL DATA CHANNELS PER HEAD--.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 6-8, 10-11 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Siebert (US 3,614,342).

With respect to claims 1-2 and 6-8, Siebert (US 3,614,342) teaches a data storage system comprising a plurality of read/write heads (56 and 57); a plurality of data channels (68-72), a subset (includes at least one of 68-72) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 3, for instance); and a storage medium (11) including a plurality of storage bands (51-54), wherein each read/write head of the plurality of read/write heads is aligned to read or write data from or to a corresponding

storage band of the plurality of storage bands (as shown in FIG. 3, for instance, i.e., as well as an additional storage band of the plurality of storage bands), and access at least the subset of the plurality of data channels (as shown in FIG. 3, for instance); and a position control unit (includes 61, for instance) operable to align at least one read/write head (56, for instance) of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a single positioning mode of operation (as shown in FIGS. 2-3, for instance) [as per claim 1]; wherein the data storage system comprises a magnetic tape drive (lines 69-70 in column 1, for instance) [as per claim 2]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 6]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N , whereby M/N comprises a number (i.e., two, for instance) of data channels per read/write head [as per claim 7]; and wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N , whereby M comprises a total number (i.e., four) of data channels, and N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 8].

With respect to the intended use limitation appearing in lines 9-11 of claim 1, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "position control unit") is intended to be employed (i.e., "to align at least one

read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *Ex parte Masham*, 2 USPQ2d 1647 (PTO BPAI 1987).

With respect to claims 10-11 and 16-18, Siebert (US 3,614,342) teaches a read/write head assembly comprising a plurality of read/write heads (56 and 57), each read/write head of the plurality of read/write heads operable to read or write data from or to a corresponding storage band (one of 51-54) of a plurality of storage bands (51-54) arranged on a storage medium (11); and a plurality of data channels (68-72), a subset (includes at least one of 68-72) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 3, for instance); and a position control unit (includes 61, for instance) operable to align at least one read/write head (56, for instance) of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a single positioning mode of operation (as shown in FIGS. 2-3, for instance) [as per claim 10]; wherein the storage medium comprises a magnetic tape (lines 69-70 in column 1, for instance) [as per claim 11]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 16]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N , whereby M/N comprises a number (i.e., two, for

instance) of data channels per read/write head [as per claim 17]; and wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N , whereby M comprises a total number (i.e., four) of data channels, and N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 18]. With respect to the intended use limitation appearing in lines 7-9 of claim 10, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "position control unit") is intended to be employed (i.e., "to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra.

7. Claims 1-3, 5-8, 10-12, and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Draaisma et al. (US 5,966,276).

With respect to claims 1-3 and 5-8, Draaisma et al. (US 5,966,276) teach a data storage system (FIG. 7, for instance) comprising a plurality of read/write heads (400 and 402); a plurality of data channels (400^L - 400^Z , 402^W - 402^Z , each 403a and each 403b), a subset (includes at least one of 400^L - 400^Z , 402^W - 402^Z , 403a and 403b) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads; and a storage medium (404) including a plurality

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of storage bands (includes S_1 - S_z , D_x - D_z and D'_x - D'_z), wherein each read/write head of the plurality of read/write heads is aligned to read or write data from or to a corresponding storage band of the plurality of storage bands (as shown in FIG. 7, for instance, i.e., as well as additional storage bands of the plurality of storage bands), and access at least the subset of the plurality of data channels (as shown in FIG. 7, for instance); and a position control unit (includes 406, for instance) operable to align at least one read/write head (402) of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a single positioning mode of operation (lines 46-59 in column 8, for instance) [as per claim 1]; wherein the data storage system comprises a magnetic tape drive (line 20 in column 8, for instance) [as per claim 2]; wherein the plurality of read/write heads comprises at least one read/write head (402^w, for instance) of a read/write configuration (403a/403b, for instance, dependent upon viewer perspective) and at least one read/write head (402^x, for instance) of a write/read configuration (403b/403a, for instance, dependent upon viewer perspective) [as per claim 3]; wherein at least one read/write head (402) of the plurality of read/write heads includes a read/write element (402^w) and a write/read element (402^x) [as per claim 5]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 6]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N , whereby M/N comprises a number (i.e., four, for instance) of data channels per

read/write head [as per claim 7]; and wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N , whereby M comprises a total number (i.e., nineteen) of data channels, and N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 8]. With respect to the intended use limitation appearing in lines 9-11 of claim 1, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "position control unit") is intended to be employed (i.e., "to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra.

With respect to claims 10-12 and 14-19, Draaisma et al. (US 5,966,276) teach a read/write head assembly (FIG. 7, for instance) comprising a plurality of read/write heads (400 and 402), each read/write head of the plurality of read/write heads operable to read or write data from or to a corresponding storage band (includes one of S_1 - S_z , D_x - D_z and D'_x - D'_z) of a plurality of storage bands (includes S_1 - S_z , D_x - D_z and D'_x - D'_z) arranged on a storage medium (404); and a plurality of data channels (400^1 - 400^z , 402^w - 402^z , each 403a and each 403b), a subset (includes at least one of 400^1 - 400^z , 402^w - 402^z , 403a and 403b) of the plurality of data channels coupled to a read/write head of the plurality of

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read/write heads (as shown in FIG. 7, for instance); and a position control unit (includes 406, for instance) operable to align at least one read/write head (402) of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a single positioning mode of operation (lines 46-59 in column 8, for instance) [as per claim 10]; wherein the storage medium comprises a magnetic tape (line 20 in column 8, for instance) [as per claim 11]; wherein the plurality of read/write heads comprises at least one read/write head (402^w, for instance) of a read/write configuration (403a/403b, for instance, dependent upon viewer perspective) and at least one read/write head (402^x, for instance) of a write/read configuration (403b/403a, for instance, dependent upon viewer perspective) [as per claim 12]; wherein at least one read/write head (402, for instance) of the plurality of read/write heads includes a read/write element (402^w) and a write/read element (402^x) [as per claim 14]; wherein the subset of the plurality of data channels comprises a read channel (403a) and a write channel (403b) [as per claim 15]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 16]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N, whereby M/N comprises a number (i.e., four, for instance) of data channels per read/write head [as per claim 17]; wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N, whereby M comprises a total number (i.e., nineteen) of data channels, and

N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 18]; and wherein the position control unit comprises an actuation unit (includes 406, for instance) operable to align at least one read/write head of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a fine positioning operation (lines 46-59 in column 8, for instance) [as per claim 19]. With respect to the intended use limitation appearing in lines 7-9 of claim 10, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "position control unit") is intended to be employed (i.e., "to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra.

Response to Arguments

8. Applicant's arguments filed 20 September 2007 have been fully considered but they are not persuasive.

With respect to the rejection of claims 1-2, 6-8, 10-11 and 16-18 under 35 U.S.C. 102(b) as being anticipated by Siebert (US 3,614,342), the applicant argues that Siebert (US 3,614,342) does not teach the limitation "a position control unit, said position control unit operable to align at least one read/write

head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation" and further points out that the element referenced by the examiner is drawn to a "head mounting plate." This argument, however, is not found to be persuasive because of the following: First, a recitation with respect to the manner in which a claimed apparatus (i.e., "position control unit") is intended to be employed (i.e., "to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation," for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra. Secondly, the examiner has stated that the head positioning unit of Siebert (US 3,614,342) "includes 61, for instance," i.e., includes the head mounting plate 61. The head mounting plate of Siebert (US 3,614,342) is shown to rotate in FIGS. 2-3, for instance, and thus controls a position of the heads and may be regarded as a component of a "position control unit." See also FIG. 7 relative to FIG. 11. The positioning control unit of Siebert (US 3,614,342) is structurally no different from that claimed by applicant.

With respect to the rejection of claims 1-3, 5-8, 10-12, and 14-19 under 35 U.S.C. 102(b) as being anticipated by Draaisma et al. (US 5,966,276), the applicant argues that Siebert (US 3,614,342) does not teach the limitation "a position control unit, said position control unit operable to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of

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operation.” This argument, however, is not found to be persuasive for the following: First, a recitation with respect to the manner in which a claimed apparatus (i.e., “position control unit”) is intended to be employed (i.e., “to align at least one read/write head of said plurality of read/write heads with said corresponding storage band of said plurality of storage bands with a single positioning mode of operation,” for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. See *Ex parte Masham*, supra. Secondly, in order to meet this limitation Draaisma et al. (US 5,966,276) merely needs to be structurally capable of performing the proscribed function. In this situation, Draaisma et al. (US 5,966,276) teach a position control unit (includes 406, for instance) capable of aligning at least one read/write head (402) of a plurality of read/write heads (400 and 402, for instance) with the corresponding storage band of the plurality of storage bands with a single positioning mode of operation (lines 46-59 in column 8, for instance). The positioning control unit of Draaisma et al. (US 5,966,276) is structurally no different from that claimed by applicant.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571)272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service

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Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

/Craig A Renner/

Primary Examiner, Art Unit 2627

CAR